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Research on Influencing Factors of User Purchase Intentions on Tourism E-commerce Platforms

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STRUCTURED ABSTRACT:
BACKGROUND INFORMATION & PROBLEM STATEMENT: *At present, the development of social e-commerce is tending to mature, while tourism social e-commerce is still waiting to flourish. After the COVID-19, it is particularly important for tourism companies to seize the opportunity of social e-commerce. Social e-commerce transforms the traditional "things" centered model into a "human" centered model. Only by discovering the needs of "people" can we accurately recommend, attract users and improve user viscosity and loyalty. Although the application of social e-commerce in the field of tourism is in the initial stage, the number of tourism social e-commerce platforms is gradually increasing in the market. The platforms should understand the needs of consumers to improve their competitive advantage.*
MOTIVATION: *This study studies the influencing factors of the tourism e-commerce platform service and the measures to improve the purchase intention of the tourism e-commerce platform users, combines with the courtesy architecture theory and uses the analytical hierarchical procedure method, and provides theoretical guidance and reference for enterprises to take effective countermeasures.*
RESEARCH METHOD: *This study uses AHP method, and collected the users' views on the services provided by the tourism e-commerce platform through questionnaires and interviews. Finally, the user service evaluation and improvement measures are shown in the form of quality house.*
FINDINGS & CONCLUSION: *Through the relationship matrix, tourism electric business platform can understand its service can meet the real needs of users, as the basis of the understanding more convenient user needs, such as figure 3, you can see the top five to set up professional customer service, real-time feedback channels, strengthen supervision, establish evaluation system, web process design. Therefore, under the premise of limited resources, enterprises can give priority to strengthening professional customer service, providing real-time feedback of users, strengthening supervision, establishing an online travel service evaluation system, and optimizing web page design. In the case of spare resources to invest capital, enterprises can consider projects with low total points such as accelerating information update, enhancing information diversification and strengthening insurance system.*
KEYWORDS: *Tourism E-commerce Platform; Service Influencing Factors; Service Optimization Measures; E-commerce User Purchase Intentions; Analytical Hierarchy Process.*

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I.INTRODUCTION

Traveling is an important way to experience social spaces and promote cultural exchanges. With China fully relaxing and optimizing the visa-free transit policy, extending the stay of visa-free transit foreigners from the original 72 and 144 hours to 240 hours (10 days), from January to November 2024, there were 29.218 million foreigner entries into China through various ports, an increase of 86.2% year-on-year; among them, 17.446 million entered visa-free, accounting for nearly 60% of the total number of foreign entries[1].Recently, a trend of "going to China after work on Friday" has arisen on South Korean social platforms, with many young South Koreans choosing to travel to China for a spontaneous trip over the weekend. European and American tourists are flocking to China in large numbers, creating a "China Travel" craze on global social media platforms such as YouTube and TikTok, with related short videos garnering over 1 billion views. "China Travel" vlogs have become a unique window to showcase an open, culturally rich, and modern China through decentralized

micro-narratives.Using tourism e-commerce platforms is an indispensable part of the travel process. The new online consumption models and products that emerged in the internet era continuously change people's ways of production and life, while also altering tourists' consumption demands. By providing booking, payment, and consulting services for diverse tourism products such as accommodation, dining, flights, routes, and tickets, these platforms combine online tourism consumption with offline tourism marketing, achieving mutual complementarity and enhancing the ability for foreign tourists to enjoy local, authentic, and professional tourism services in a foreign country. Online tourism consumption is becoming an increasingly popular and widely accepted new form of tourism.

The number of users on tourism e-commerce platforms is also increasing annually. The potential and profitability of the tourism e-commerce service market are receiving widespread attention. However, there are still many aspects of information service provision and continuous development on tourism e-commerce platforms that need improvement, such as low content quality, incomplete service systems, weak deep service awareness, and untimely information updates. This study aims to use the Analytical Hierarchy Process (AHP) to help improve the service functions of tourism e-commerce platforms to meet more user needs.

II.LITERATURE REVIEW

1.TOURISM MOBILE E-COMMERCE PLATFORM

E-commerce is a business model where transactions occur over the internet. It not only refers to the buying and selling of goods and services but also includes conducting various business activities online, such as providing customer services, collaborating with business partners, offering e-learning, and conducting electronic transactions within organizations. Tourism e-commerce, as a product of the organic integration of the tourism industry and e-commerce, can be described as a business system that relies on tourism networks, tourism information databases, and electronic business banks, utilizing advanced scientific and technological methods to achieve the electronization of all aspects of tourism business activities. The rise of tourism e-commerce has changed the traditional business model by providing consumers with personalized and diversified services while reducing operating costs for e-commerce enterprises.The core of tourism e-commerce platforms is to attract online consumers to physical stores. These platforms provide discount information or services from offline stores to online consumers, offering them discount information or services. Consumers can obtain product information and discount vouchers, and even complete the order and payment process online. Finally, they go offline to enjoy the services. Consumers and platforms can interact through the online O2O (Online-to-Offline) transaction platform, which can monitor transaction status in real-time. This allows consumers to explore the proportion of high-quality goods and services, and enables the platform to maximize commercial value. Therefore, this study defines tourism e-commerce platforms as activities conducted on the internet, intranets, and databases using electronic transaction methods for tourism product transactions and related services, which involves the socialization, interactivity, informatization, and networking of various business aspects of traditional e-commerce platforms.

Hew et al. (2016) found that tourists' willingness to use mobile tourism websites is influenced by three factors: the technical design of the website, information content, and online services[2]. Buhalis and Foerste (2015) constructed the Social Context Mobile (SoCoMo) marketing framework, which supports dynamic interactions between tourism consumers and suppliers, and among tourism consumers themselves, based on a peer-to-peer model[3]. This marketing method is more convenient and flexible compared to others, allowing destination managers to dynamically communicate with consumers through tourism mobile e-commerce platforms before, during, and after their travel, thus co-creating the travel experience.

2. POLITENESS ARCHITECTURE

To improve the online service quality of e-commerce platforms, politeness can generally enhance online social interactions, thereby achieving the goal of improving online service quality. Studies have quantified the politeness metrics for e-commerce platforms, showing that e-commerce etiquette is gradually gaining attention (I-Ching Chen & Shueh-Cheng Hu, 2017)[4]. Politeness makes social environments better by considering others in social settings.If the software agent works for the party interacting with it, it is an assistant, both for the same person and for the same person, and the human-computer interaction with the assistant also requires politeness. If the software interacts socially, then it should be designed accordingly (Cooper, 1999)[5].When a computer system enters an infinite loop and hangs, it is a software error. When software offends and drives away users, it is a social error. Therefore, software that respects and considers users is polite (B. Whitworth & A. Ahmad, 2013)[6]. If the person being considered knows what is "thoughtful" for them, politeness can be abstractly defined as giving the other person the choice in social interactions, as only they know what benefits them. In conversations, if the control point of the channel is passed back and forth between parties, giving control to the other party is considered polite (B. Whitworth, 2005)[7].Based on the previous definition, polite software should:

- Respect the rights of data owners, without changing data without the owner's permission;
- Help people make informed decisions by providing useful and understandable information;
- Remember past interactions;
- Respond to human instructions instead of pursuing its own programming goals.

For a tourism e-commerce platform to become polite software and stand out in a competitive market by providing superior travel experiences to users, it should achieve the following politeness architecture levels, as shown in Figure 1.

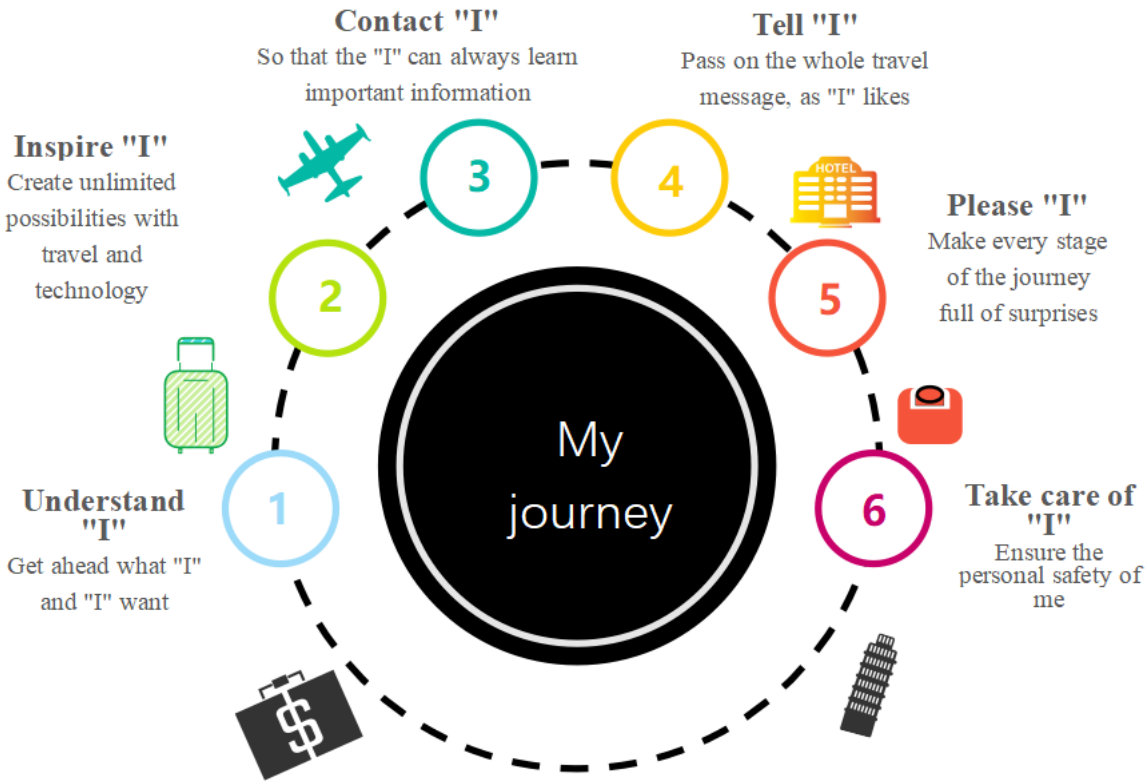


Fig.1. Polite architecture diagram of tourism e-commerce platform

The most basic is caring for users and ensuring their personal safety. Tourism e-commerce platforms should prioritize this as their primary task. In terms of information provision, they should comprehensively and accurately present information on public security, natural disaster risks, and disease prevention at tourist destinations, giving users a clear understanding before traveling.Secondly, understanding users is key to providing quality service. Tourism e-commerce platforms can utilize big data and artificial intelligence technologies to analyze user browsing, searching, and purchasing behaviors, accurately grasping user interests and travel needs, such as preferred types of travel destinations, accommodation preferences, and activity preferences.Tourism e-commerce platforms should not only meet users' existing needs but also stimulate new interests in travel. The platform should showcase a variety of travel destinations and experiences, covering niche unique attractions and various special activities like eco-tourism, cultural tourism, adventure tourism, and food tourism, through exquisite pictures, vivid text, and exciting videos, allowing users to appreciate the rich diversity of tourism.Maintaining close contact with users is essential.

Tourism e-commerce platforms should provide multiple communication channels, including online customer service, telephone customer service, email, and social media, ensuring users can inquire, give feedback at any time, and continuously receive travel information throughout the journey according to their preferences.Lastly, tourism e-commerce platforms should aim to delight users, creating enjoyable experiences and surprises at all stages. This enhances user satisfaction and loyalty, giving the platform a competitive edge[8]. By fully implementing these levels, the platform can win users' trust and favor, achieving sustainable development.

3. ONLINE SERVICE QUALITY

In the early stages of service quality research, scholars focused on traditional service quality. However, the advent of Internet 1.0 changed past traditional business service models, prompting scholars to gradually shift

their research focus to service quality in the online environment, known as E-Service Quality (E-SQ). Surjadjaja, Ghosh, and Antony (2003) defined E-Service Quality as the evaluation of electronic service levels, including effectiveness and efficiency[9]. Kim, Park, and Jeong (2004) referred to E-Service Quality as the evaluation of the services received by customers during the product purchasing and usage process[10]. Gummerus et al. (2004) analyzed the connotation of E-Service Quality from the perspective of electronic channel interaction, proposing that E-Service Quality reflects customers' evaluations of the entire interaction process and the final outcomes[11].

Lee and Mills (2010) discovered that mobile tourism service quality affects customer satisfaction and continuous usage behavior[12]. Izquierdo-Yusta et al. (2014) divided consumers into browsing and purchasing types, finding that browsing consumers are more influenced by the service convenience of online tourism platforms, while purchasing consumers are more influenced by perceived usefulness[13]. Liu and Zhang (2014) compared OTA platforms with online hotel booking platforms, finding that tourism consumers prefer to choose platforms with higher online service quality[14]. Ruiz-Mafe et al. (2009) pointed out that the performance and privacy security of online ticket booking systems affect customers' decisions to use online ticket booking services[15]. This study analyzes the influencing factors of customer trust in tourism e-commerce platforms and explores how these platforms influence customer trust and purchase behavior of tourism products.

III. RESEARCH METHODS

1. ANALYTIC HIERARCHY PROCESS

The Analytic Hierarchy Process (AHP) was proposed by Saaty in 1990[16]. AHP is a multi-objective decision-making method primarily used in uncertain situations and decision-making problems with multiple evaluation criteria. It allows for the analysis of complex evaluation problems into clear hierarchical structures by gathering the opinions of experts and scholars, forming hierarchical relationships. Several evaluation elements are combined into several mutually exclusive sets, and their importance is measured through evaluation tables. This method decomposes decision-related elements into levels such as goals, criteria, and alternatives, enabling further qualitative and quantitative analysis. Therefore, it utilizes human experience, intuition, and insight to judge uncertain environments, considering unquantifiable factors. It also systematically conducts comparative analysis of indicators, calculates based on quantified data, and ultimately derives objective conclusions, providing important reference value for improving decision-making systematics and reliability.

M.P.S and H.T et al. (2021) conducted in-depth research using the AHP method, finding no significant differences in the weight of different risk variables, with price and cost fluctuations being considered the most important factors[17]. Olayinka (2021) and other scholars combined AHP from multiple angles and levels to comprehensively evaluate the financial performance of logistics companies, accurately reflecting the overall financial status in performance evaluation[18]. Abraham L and Alejandro (2021) used AHP to link indicators between different sustainable development goals, finding that health, employment, and education had higher weights, while environmental indicators had lower weights[19]. This discovery is important for balancing relationships between different sustainable development goals and formulating scientifically reasonable policies.

When using the AHP research method for comparative evaluation, absolute numerical scales can be converted to ratio scales for pairwise comparison, and positive reciprocal matrices can be used to process whether preference relationships satisfy transitivity. Both superiority and strength relationships need to satisfy transitivity. For example, if A is stronger than B and B is stronger than C, then A must be stronger than C. If A is three times stronger than B and B is twice as strong as C, then A is six times stronger than C. Since complete transitivity is difficult in practice, partial transitivity is allowed, but consistency levels need to be tested to ensure they are within acceptable ranges using weighting principles. Table 1 shows the Random Index (R.I.).

Table 1. Random Consistency Index (R.I)

Values Dimensions of A	1	2	3	4	5	6	7	8	9
R.I	0.0	0.0	0.58	0.96	1.12	1.24	1.32	1.41	1.45

2.RESEARCH DESIGN

This study adopts the Delphi method, which Gupta & Clarke (1996) regard as a qualitative research technique[20]. The main objective is to identify common opinions among a group of people or experts through repeated processes, serving as a long-term prediction of specific phenomena. Therefore, this study involves interviews with users of tourism e-commerce platforms. Through multiple rounds of face-to-face interactions,

the collected data is analyzed and categorized into five main classifications of user needs: service, safety, convenience, professionalism, and economy, based on the previously analyzed politeness architecture.

This study uses the House of Quality (HOQ) to analyze the influencing factors and strategies of service on tourism e-commerce platforms through a cause-and-effect relationship analysis. The basic idea revolves around "what is needed" and "how to satisfy it," with the core method being a detailed breakdown of customer needs based on their acquisition and synthesis. The House of Quality is an intuitive matrix framework representation, providing a tool for implementing these requirement transformations in product development. The concept of the House of Quality extends from the Quality Function Deployment (QFD) theory, which was introduced by Yoji Akao in 1972 as a product development methodology[21]. QFD integrates user needs throughout the entire design cycle, overcoming the drawbacks of outdated design methods by acquiring and analyzing user needs. Duan et al. (2020) utilized the Quality Function Deployment tool for reverse decomposition, extracting key variables with potential impacts[22]. Tontini G (2007) proposed a product design method that combines the QFD model to determine the importance of customer needs based on customer survey results, thereby optimizing the product design process[23]. The House of Quality can be integrated within the Quality Function Deployment scope. Its diagram resembles a house structure, which is why it is imaginatively called the House of Quality. Essentially, it consists of numerous matrices and tables forming a pattern that includes the roof structure, main body structure, and left and right wall structures. The House of Quality (HOQ) stems from customer needs analysis, placing the required elements in the diagram in a specific format. Besides needs analysis, it also reflects the resources required to meet these needs, integrating all these elements to form the House of Quality. With the development of strategic management theory, the Quality Function Deployment theory and its measurement tools, such as the House of Quality, have been applied to the strategic management of numerous organizations and regions, including enterprises.

IV.DATA ANALYSIS

1. ESTABLISHING THE HIERARCHICAL DECISION MODEL

The first step in using the Analytic Hierarchy Process (AHP) to analyze a problem is to deeply analyze the problem and study various factors. Based on the final goal, the decision-making objectives are decomposed and stratified, constructing a hierarchical structure diagram from top to bottom. In this hierarchical structure diagram, the goal layer is at the top, usually indicating the issue the researcher needs to solve, typically with only one goal. The criterion layer generally exists as a middle layer, having a certain subordinate relationship with the goal layer, and similarly, the criterion layer also connects with the alternative layer below it. The alternative layer at the bottom consists of the options considered in decision-making. Specifically, for this study's service evaluation, the final score constitutes the goal layer, the primary indicators form the criterion layer, and the secondary indicators form the alternative layer. Therefore, in this study, the collected data were summarized into the main categories of user needs items, which were divided into five categories: service, security, convenience, professionalism and economy. Then, the importance weight of the major categories was obtained by issuing questionnaires, and a total of 126 questionnaires were distributed. After excluding 27 invalid questionnaires with incomplete or obviously wrong answers, answers not common sense or unrelated to the subject, or answers, 99 valid questionnaires remained. The survey period was from December 28, 2024, to January 10, 2025, with a response period of 14 days and a response rate of 78.6%. The hierarchical structure is shown in Figure 2.

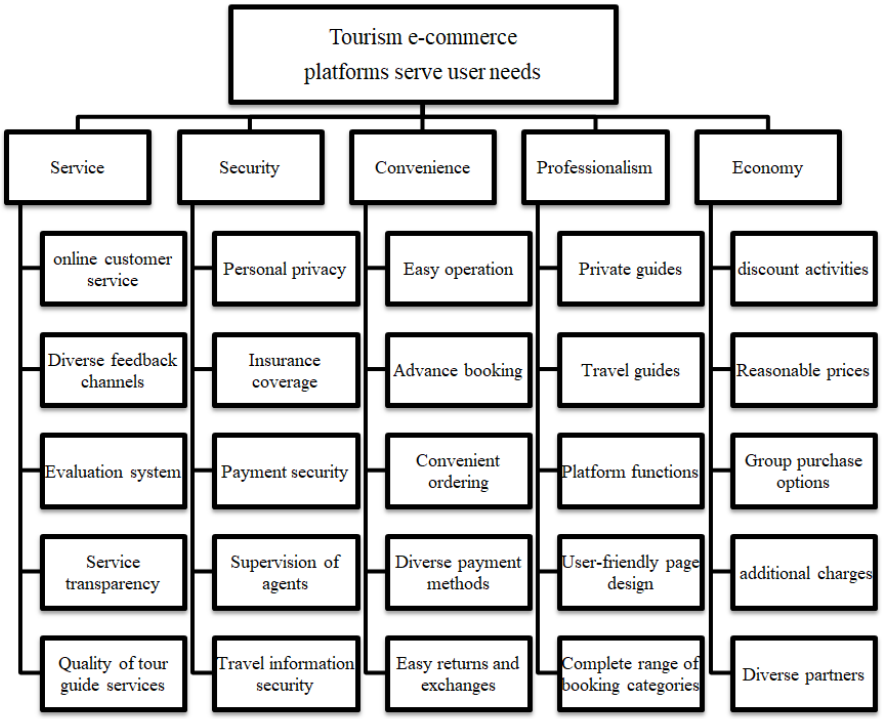


Fig. 2.Hierarchical Structure Diagram of This Study

2. CONSTRUCTING THE JUDGMENT MATRIX

In the process of using the AHP (Analytic Hierarchy Process), the most crucial task is the construction of weights. The method used in weight construction involves: first establishing a comprehensive indicator evaluation system for the object of analysis, then comparing all the indicators in the evaluation system pairwise to determine the relative importance of each indicator, and finally using objective mathematical operations to determine the weights of each evaluation indicator. The most commonly used method is the eigenvalue method. Let A be a judgment matrix representing the relative importance judgment values of the same level indicators, thus: $A = (a_{ij})_{m\times n}$. In this judgment matrix, each element a_{ij} represents the pairwise comparison value of the relative importance of the row indicator Z_i to the column indicator Z_j. Clearly, this judgment matrix is actually a square matrix, meaning it can also be represented as:$A = (a_{ij})_{m\times m}$.

3. DETERMINING THE WEIGHTS

This study adopts the most common normalization of the geometric mean of the rows (NGM) method proposed by Saaty (1990) for the approximate solution method of the Analytic Hierarchy Process. Using the NGM method, the numerical values in the pairwise comparison matrix above are used to calculate the priority vector for each column value of the pairwise comparison matrix. If the importance weights of each evaluation indicator are expressed in a vector, then it is called the eigenvector of the judgment matrix: $\omega = (\omega_1, \omega_2, \cdots, \omega_m)$. The formula is as follows:

$$w_i = \left(\prod_{j=1}^{n} a_{ij}\right)^{\frac{1}{n}} \Big/ \sum_{i=1}^{n}\left(\prod_{j=1}^{n} a_{ij}\right)^{\frac{1}{n}} \quad i, j = 1,2,..,n \tag{1}$$

Where ω_i = is the eigenvector, and a_{ij} is the pairwise comparison matrix, i, j=1, 2, ..., n.

4. CONSISTENCY TEST

Step 1: Calculate the largest eigenvalue of the judgment matrix. This study uses the "systematic category" indicator values as a demonstration, as shown in Formula 2:

$$\lambda_{\max} = \frac{1}{n}\left(\frac{w_1'}{w_1} + \frac{w_2'}{w_2} + \cdots + \frac{w_n'}{w_n}\right)$$

$$\approx 5.044793632. \quad (2)$$

Where is the largest eigenvalue, $\lambda_{\max}$ is the number of factors, n is the largest eigenvalue of each column, and ω' is the eigenvector. Step 2: Calculate the Consistency Index (C.I) of the judgment matrix. The Analytic Hierarchy Process (AHP) uses the Consistency Ratio (C.R) to measure the consistency of pairwise comparison matrices, primarily relying on the Consistency Index (C.I) and the Consistency Ratio (C.R). Saaty (1990) suggested that the Consistency Ratio (C.R) should be 0.1 or less, indicating that the level of consistency is within an acceptable range. The following formula can be used:

$$C.I = \frac{\lambda_{\max} - n}{n-1}$$

$$\approx 0.011198408. \quad (3)$$

Where $\lambda_{\max}$ is the largest eigenvalue, n is the number of factors, and C.I is the Consistency Index, which must be less than or equal to 0.1. Step 3: Calculate the Random Consistency Ratio (C.R) of the judgment matrix. From the Consistency Index (C.I), the Random Consistency Ratio (C.R) for testing can be calculated. Confirm whether the C.R value is 0.1 or less; if C.R ≤ 0.1, it indicates that the level of consistency is within an acceptable range. The calculation method is shown in Formula 4:

$$C.R = \frac{C.I}{R.I}$$

$$\approx 0.009998579. \quad (4)$$

Where C.R is the Consistency Ratio and must be 0.1 or less, R.I(Random Index) is the Random Consistency Index (which can be looked up in a table, such as Table 1). According to Figure 1 of this study's hierarchical structure, the values obtained from each category questionnaire are used to repeatedly execute the AHP process to derive the pairwise comparison matrices for Service, security, convenience, professionalism and economy. The C.I and C.R values of the pairwise comparison matrices for the five main user demand items are shown in Table 2. As indicated, the C.R values obtained in this study are all less than 0.1, indicating that the values obtained in this study are within an acceptable range.

Table 2. Summary of Weights for Main User Demand Items

Main Item	C.I Values	R.I Values	C.R Values
Serviceability	0.001395	1.12	0.001245
Safety	0.003373	1.12	0.003012
Convenience	0.004226	1.12	0.003773
Professionalism	0.002612	1.12	0.002335
Economy	0.008215	1.12	0.007335

Finally, the weight values for the five main user demand items are obtained, as shown in Table 3.

Table 3. Summary of Weights for User Demand Items

Main Item	Sub-Item	Weight Value	Main Item	Sub-Item	Weight Value
Serviceability	Online customer service	0.19279	Safety	Personal Privacy	0.17582
	Diverse feedback channels	0.22564		Insurance coverage	0.21669
	Evaluation system	0.19184		Payment security	0.18065
	Service transparency	0.19289		Supervision of third-party agents	0.22090
	Quality of tour guide service	0.19685		Tourist information security	0.20596
Convenience	Easy to operate	0.19575	Professionalism	Private guide	0.20462
	Order in advance	0.18669		Travel guide	0.18978
	Ordering convenience	0.21283		Platform features	0.20682
	Diversified payment methods	0.19973		Page design	0.18996
	Easy to return and exchange	0.20500		There are a wide range of order categories	0.20883
Economy	There are many promotions	0.18558			
	The price is reasonable	0.18319			
	Group buying options	0.21125			
	There is no additional charge	0.20375			
	Diverse partners	0.21623			

5. ESTABLISHING THE HOUSE OF QUALITY

Using the weight values obtained through the Analytic Hierarchy Process (AHP), the House of Quality is constructed step by step as follows:

User Demand Items. This is the first step in establishing the House of Quality in this study. The results of various interviews are presented systematically and structurally, representing the user demand part of the House of Quality. The collected information is categorized into five main categories: Service, security, convenience, professionalism and economy. Table 4 shows the user demand items.

Table 4. User Demand Items Table

Main Item	Sub-Item	Main Item	Sub-Item
Serviceability	Online customer service	Safety	Personal Privacy
	Diverse feedback channels		Insurance coverage
	Evaluation system		Payment security
	Service transparency		Supervision of third-party agents
	Quality of tour guide service		Tourist information security
Convenience	Easy to operate	Professionalism	Private guide
	Order in advance		Travel guide
	Ordering convenience		Platform features
	Diversified payment methods		Page design
	Easy to return and exchange		There are a wide range of order categories
Economy	There are many promotions		
	The price is reasonable		
	Group buying options		
	There is no additional charge		
	Diverse partners		

Facing the project of user demand, build maintenance of tourism electric business platform related information personnel, must put forward relevant technical solutions to optimize, this research by the interview involved in tourism electric business platform service process of relevant information personnel, learned that the current tourism electric business platform technology demand solutions, and establish a structured project table. Table 5 is the list of the technical requirements of the tourism e-commerce platform.

Table 5. Technical Demand Items Table

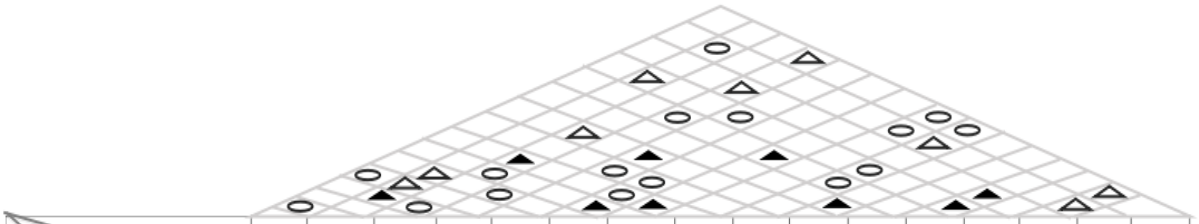
Technical Demand Items	
Establish professional customer service	Establish an evaluation system
Strengthen tour guide training	Simplify the return and exchange process
Design web processes	Enhance payment security
Enhance the membership system	Streamline the transaction process
Reinforce regulatory measures	Real-time feedback channels
Increase payment methods	Accelerate information updates
Diverse information system	Ensure information security
Strengthen the insurance system	Increase the intensity of discounts

Relationship matrix: In order to understand whether the functional quality provided by the tourism e-commerce platform meets the needs of users, this study starts from collecting user feedback, and aims to improve the service quality of tourism e-commerce and provide services that can better meet the needs of users. The user demand project list and the technical demand response project list established in this study are linked by the relationship matrix to understand the importance of the technical requirements provided by the relevant personnel of the tourism e-commerce platform. The weighted total score is obtained by multiplying the importance of the user's demand for functional quality by the strength of the correlation, as shown in Equation 5.

$$X = \sum_{i=1}^{n} w_i * k_i \quad (5)$$

where X is the total score, w_i is the weight, and k_i is the relationship strength. The higher the total score, the solution that under the limited resource evaluation, the tourism e-commerce platform should first consider the improvement of the technology needs. According to the results of this study, in terms of user needs, it can be divided into five categories, namely, service, security, convenience, professionalism and economy. Among them, the service has more weight of diverse feedback channels, guide service quality and service transparency; the security has higher supervision by third-party agents and higher weight of insurance guarantee; the convenience of ordering, return and exchange; the professionalism has complete ordering categories and platform functions; and the economy has the higher weight of diverse partners and group buying; in general, the top five with the highest weight are in order of diverse feedback channels, supervision of third-party agents, insurance protection, diverse partners and convenient ordering.

By using the relationship matrix, tourism e-commerce platforms can know whether the services they provide can meet the real needs of users, so as to be the basis for understanding more in line with the needs of users, as shown in Figure 3. As can be seen from the figure, the top five total points are the establishment of professional customer service, real-time feedback channels, strengthening supervision, establishment of evaluation system and web process design. Therefore, under the premise of limited resources, enterprises can give priority to strengthening professional customer service, providing real-time feedback of users, strengthening supervision, establishing an online travel service evaluation system, and optimizing web page design. In the case of spare resources to invest capital, enterprises can consider projects with low total points such as accelerating information update, enhancing information diversification and strengthening insurance system.



Customer Demand	Technical Demand / Weight		Establish professional customer service	Establish an evaluation system	Strengthen tour guide training	Simplify the return and exchange process	Design web processes	Enhance payment security	Enhance the membership system	Streamline the transaction process	Reinforce regulatory measures	Real-time feedback channels	Increase payment methods	Accelerate information updates	Diverse information system	Ensure information security	Strengthen the insurance system	Increase the intensity of discounts
Serviceability	Online customer service	0.192790	5	3	1	2	0	0	0	1	1	3	0	0	0	0	0	0
	Diverse feedback channels	0.225640	4	5	1	0	0	0	1	0	5	5	0	0	0	0	0	0
	Evaluation system	0.191840	3	5	1	0	3	0	1	0	3	4	0	1	0	0	0	0
	Service transparency	0.192890	4	3	2	0	3	0	1	0	3	4	0	2	0	1	1	0
	Quality of tour guide service	0.196850	4	4	5	0	0	0	0	0	3	2	0	0	1	5	0	0
Safety	Personal Privacy	0.175820	0	1	0	0	0	4	0	0	3	2	0	0	0	0	1	0
	Insurance coverage	0.216690	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
	Payment security	0.180650	0	0	0	0	0	5	0	0	2	2	1	0	0	0	0	0
	Supervision of third-party agents	0.220900	4	4	0	0	0	2	0	0	5	4	0	0	0	0	0	0
	Tourist information security	0.205960	3	2	0	0	0	0	0	0	4	2	0	1	3	5	0	0
Convenience	Easy to operate	0.195750	3	0	0	5	3	0	1	5	1	2	4	2	1	0	0	0
	Order in advance	0.186690	3	0	0	3	3	2	1	1	0	2	1	1	0	0	0	0
	Ordering convenience	0.212830	3	0	0	3	3	2	1	1	0	2	4	0	0	0	0	0
	Diversified payment methods	0.199730	0	0	0	0	3	4	0	0	0	0	5	0	0	0	0	0
	Easy to return and exchange	0.205000	4	0	0	5	3	0	0	4	1	2	0	0	0	0	0	0
Professionalism	Private guide	0.204620	1	1	5	0	0	0	3	0	1	1	0	0	0	0	2	0
	Travel guide	0.189780	4	1	4	0	3	0	3	0	1	1	0	0	0	0	0	0
	Platform features	0.206820	1	2	1	0	4	3	3	0	0	4	0	0	0	0	1	0
	Page design	0.189960	0	0	0	0	4	0	0	0	0	1	0	0	3	0	0	0
	There are a wide range of order categories	0.208830	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Economy	There are many promotions	0.185580	0	1	0	0	0	0	4	0	0	0	0	0	0	0	0	5
	The price is reasonable	0.183190	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	5
	Group buying options	0.211250	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4
	There is no additional charge	0.203750	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	3
	Diverse partners	0.216230	1	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0
Total Score			10.3	6.7	4.0	3.6	6.5	4.3	5.7	2.4	7.1	8.7	3.0	1.4	2.2	2.1	2.1	3.3
Priority Order			1	4	8	9	5	7	6	12	3	2	11	16	13	14	14	10

Fig.3. House of Quality

The relationship matrix represents the relationships and strengths between various technical requirements. ▲ indicates a positive correlation, ○ indicates a correlation, and △ indicates a negative correlation, as shown in the triangle at the top of Figure 3. The relationship matrix helps in understanding how multiple solutions should be coordinated or balanced when being implemented.

V. CONCLUSIONS

In the theoretical sense, this study summarizes and refines the various dimensions of the politeness framework, and combined with AHP, puts forward an influence model of user value collaborative creation of tourism e-commerce platform based on user experience. Through empirical test, it demonstrates the influence effect of politeness framework and hierarchical important factors on the collaborative creation of user value, which is conducive to the differentiation study of user experience of tourism e-commerce platforms in the future. Next, the specific improvement direction and corresponding management opinions of stores, platforms and customers are proposed to give the tourism e-commerce platform as a reference to promote the healthy and stable development of the e-commerce ecosystem.

1. FOR SHOP OWNERS

The higher the reputation score of the enterprises settled on the tourism e-commerce platform, the higher the reputation among netizens, the less negative news, and the more trust the customers have in the platform. The enterprise's reputation is key to ensuring product service and safety for customers. Real, objective enterprise information and high reputation scores are beneficial for establishing a good social image and a positive influence on customer trust.

The higher the customer rating on the tourism e-commerce platform, the higher the positive review rate. Through reviews of tourism products, customers' understanding of the products will be deeper and more comprehensive. Text reviews, images, and videos help customers fully perceive the products and services, aiding them in obtaining more effective information, thus increasing their trust in the platform. However, one must consider malicious shops that boost their ratings to mislead consumers. Effective communication between shop owners and customers is crucial; high-quality communication services provided by shop owners increase customer trust. Addressing customer complaints promptly and fairly is vital for building trust.

2.FOR TOURISM E-COMMERCE PLATFORMS

Platforms that offer comprehensive, advanced services and functions, provide truthful, accurate, real-time tourism information, and protect customer personal information, while making booking, payment, and cancellation processes convenient and straightforward, will earn higher customer ratings and trust. Highlighting important agreement terms, adhering to service standards offline, and fulfilling agreements with customers positively impact trust. Fast, secure payment functions, stable, secure networks, and independent stores on the platform without false advertising also enhance customer trust. Offering after-sales services post-travel can further deepen trust. Providing additional discounts or benefits when booking, such as coupons, free upgrades, and souvenirs, collaborating with local merchants for unique experiences, and using interactive functions during the trip can increase user engagement and loyalty.

3.FOR CUSTOMERS

The more successful transactions customers have on the platform, the more trust they will have in it. Platforms that provide high-quality products and quick services, accurately meeting customer needs, will be trusted. Offering personalized services for individualized customer needs can deepen trust. Providing high-quality, affordable products and services with fair, transparent, and honest prices, and ensuring price protection for purchased products, increases trust. Establishing referral rewards for customers who bring new users, receiving positive word-of-mouth recommendations, and engaging in social media collaborations can improve trust. Handling negative reviews timely and maintaining a mechanism for public opinion supervision are crucial for increasing trust.

This study reveals that many tourism e-commerce platforms' resources and system functions do not necessarily meet users' needs. Beyond traditional standard functions, platforms should seek and develop features that cater to actual user needs. This study aims to assist in improving the service functions of tourism e-commerce platforms through analytical hierarchy processes to meet more user needs, providing a better service quality evaluation, and serving as a reference for improving service quality across platforms.

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